

Description

The Basic Atom is a tiny computer, or better known as a microcontroller. The Basic Atom was designed for use in a wide array of applications. The Basic Atom is built around the 16F876 PICmicro MCU®, which contains internal memory (384 Bytes of RAM and 8K of FLASH / program space). Each ATOM has a built-in 5-volt regulator, a number of general-purpose I/O pins (TTL-level, 0-5 volts), commands for math and I/O pin operations and a RS232 level converter, for in circuit programming.

Hardware

The Basic Atom 40 pin was designed to be pin compatible to the Basic Atom 24 pin module. The Atom 40 pin version has an additional 16 pins that can be used for digital I/O or Analog (Select pins only) inputs. These additional I/O pins can be accessed using their associated pin labels as shown. The Basic Atom 40 pin module can DEBUG and use analog at the same time. This was a limitation with the 24 pin Atom.

Important Note

The additional I/O pins on the Atom 40 module P17-P27 can only be accessed by bit level. The IN and OUT commands are not currently implemented in Atom software release 2.2. Release 2.3, this will change and all documentation will be updated. The additional I/O can still be accessed directly by using the pin name such as P18 or P20.

Programming Connection Method I

Without the development board; the ATOM must be connected to a free PC serial port as shown. DTR or RTS must be connected to the ATN pin. Power must be supplied with a common ground to the Atom and serial cable ground. A maximum of 9 volts can be used to power the Atom from the VIN pin. Otherwise a regulated 5 volts can be supplied to VDD. If you have trouble connecting to the Atom double check your wiring. Most programming problems arise from incorrect wiring or faulty serial cables.

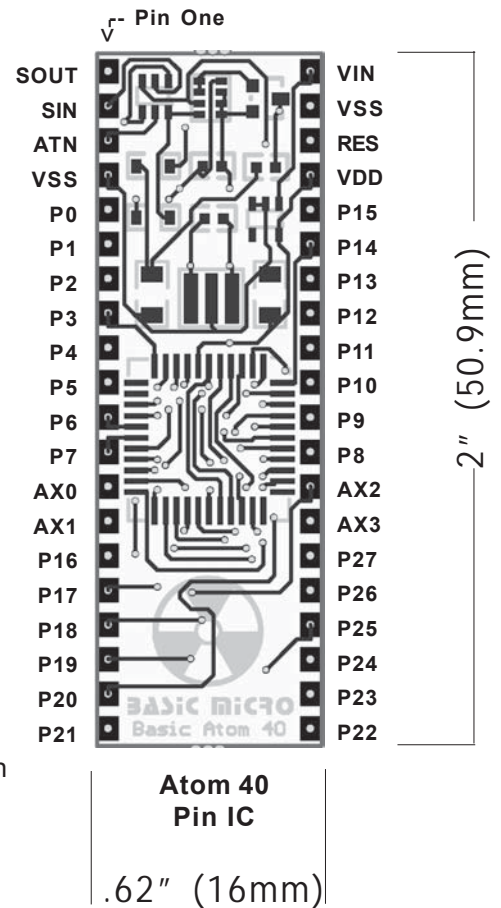


Programming Connection Method II

With the ATOM development board; first insert the Basic Atom module with power off. Pin one on the Development is clearly marked. Pin one on the Basic Atom, is the pin labeled SOUT, shown above. Connect the PC serial port to the DB-9 connector. Then plug the power adapter in and power up the development board. If you are having problems programming the Atom double check your connections. Make sure power is applied and the LED is lite on the development board. Most programming problems are usually related to bad serial cables.

Software Setup

To begin software installation, follow the instruction in the Basic Atom programming manual. Once you have the software installed make sure to select the correct COM port, the Basic Atom is attached to. Go to the Tools menu, select System Setup. The setup screen will only display the COM ports available. If a certain COM port is not displayed, windows is not reporting its status to the Basic Atom software. Check your device manager to ensure the COM port is installed correctly.



Pin Descriptions

S_OUT	Serial Out 115K, connects to PC serial port RX pin (DB9 pin 2 / DB25 pin 3) for programming the ATOM.
S_IN	Serial in 115K, connects to PC serial port TX pin (DB9 pin 3 / DB25 pin 2) for programming the ATOM.
ATN	Driven Reset, connects to PC serial port DTR (or RTS) pin (DB9 pin 4 / DB25 pin 20) for programming The ATOM
VSS	Power / Serial Ground.
VDD	5-volt DC input/output. Unregulated voltage applied to the VIN pin will output 5 volts on VDD. Regulated voltage between 4.5V and 5.5V should be applied to VDD if no voltage is applied to VIN.
RES	Driven low to force a reset. This pin is internally pulled high and can be left disconnected. Do not drive high.
VIN	Power Input 5-12 VDC. Internally regulated to 5 Volts. Can be left disconnected if 5 volts is applied to VDD.
P0-P27	General-purpose I/O pins. Max for each pin is; sink 25 mA and source 20mA. Total for all pins should not exceed 50 mA (sink) and 40 mA (source).
AX0-AX3	General-purpose I/O pins, Analog or Digital pins. Max for each pin is; sink 25 mA and source 20mA. Total for all pins should not exceed 50 mA (sink) and 40 mA (source).

Power Consumption

Normal operation, no loads	5ma
Sleep Mode	200ua
Nap Mode	600ua

Warranty

Basic Micro warranties its products against defects in material and workmanship for a period of 90 days. If a defect is discovered, Basic Micro will at our discretion repair, replace, or refund the purchase price of the product in question. Contact us at support@basicmicro.com No returns will be accepted without the proper authorization.

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Discussion List

A web based discussion board is maintained at <http://www.basicmicro.com>

Technical Support

Technical support is made available by sending an email to support@basicmicro.com. All email will be answered within 48 hours. All general syntax and programming question, unless deemed to be a software issue, will be referred to the on-line discussion forums.